

WHAT IS CLAIMED IS:

- 1 1. A system comprising:
 - 2 a first data processor having an input data port, and an output control port;
 - 3 a memory having a data port to provide output data;
 - 4 a first bit access controller having an input data port coupled to the output data port of the
 - 5 memory, an input control port coupled to the output control port and an output data
 - 6 port coupled to the input data port of the first data processor, the first bit manipulator
 - 7 further including:
 - 8 a plurality of storage locations coupled to the input data port of the first bit
 - 9 manipulator, wherein each storage location stores data having N bit locations
 - 10 including a first bit and a last bit; and
 - 11 a bit shift module having an input port coupled to the plurality of line storage
 - 12 locations, and an output port coupled to the input data port of the first data
 - 13 processor, the shifter to provide at its output shifted bit values that are shifted
 - 14 relative to their storage location within the plurality of line storage locations,
 - 15 wherein the shifted bit values are shifted based on a value received at the
 - 16 input control port.
- 1 2. The system of claim 1 wherein the plurality of storage locations are part of a circular buffer.
- 1 3. The system of claim 2, wherein the circular buffer is used to form a first in first out buffer.
- 1 4. The system of claim 1, wherein the plurality of storage locations are part of a first in first out
 - 2 buffer.

- 1 5. The system of claim 1 further comprising a memory control portion having a first control
2 port coupled to a control port of the bit manipulator, and a second control port coupled to a
3 control port of the memory, wherein the memory control portion requests data from memory
4 to be stored in the plurality of storage locations.
- 1 6. The system of claim 5 further comprising a watermark storage location to store a value to
2 indicate the memory control portion is to request data from memory.
- 1 7. The system of claim 1 wherein the first data processor further comprises a general purpose
2 processor.
- 1 8. The system of claim 7, wherein the general data processor includes a RISC type processor.
- 1 9. The system of claim 8, wherein the RISC type processor includes a MIPS based processor.
- 1 10. The system of claim 9 further comprising a video processor, wherein the video processor is
2 separate from the first data processor.
- 1 11. The system of claim 9, wherein the video processor includes a video transcoder.
- 1 12. The system of claim 1 further comprising a storage location coupled to the first bit access
2 controller to store a value indicating an amount of valid data stored in the plurality of storage
3 locations.

- | 1942 | 1943 | 1944 | 1945 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1942 | 1943 | 1944 | 1945 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |

1 16. A method comprising the steps of:
2 loading a plurality of data words into a storage location based upon a data request by a data
3 processor;
4 when in a first mode of operation receiving an indicator from the data processor to
5 implement a get_bits request; providing data from the storage location in response
6 receiving the indicator from the data processor.

1 17. The method of claim 16, wherein the step of providing further includes implementing the
2 get_bits in hardware.

18. The method of claim 16, wherein the step of providing further includes user selectively
implementing one of one-filling and zero filling.

19. The method of claim 16, further comprising the step of:
when in a second mode of operation the indicator from the data processor is to implement a
Huffman decode.

- 1 20. A method of using a general purpose data processor to access a portion of data bits of a
 2 plurality of data bits, the method comprising the steps of:
 3 providing a first request for N data bits to a bit controller, the bit controller being separate
 4 from the general purpose data processor, where the first bit of the N data bits is not
 5 aligned on a byte boundary;
 6 receiving the N data bits from the bit controller;
 7 determining at the general purpose data processor if M data bits are available from the bit
 8 controller;
 9 when the M data bits are available from the controller providing a second request for M data
 10 bits to the bit controller.
- 11 21. The method of claim 20 wherein the step of determining includes accessing a register
 12 associated with the bit controller to determine if M data bits are available.
- 13 22. The method of claim 20 further comprising the steps of:
 14 receiving an interrupt indicating an amount of data used by the bit controller;
 15 modifying an indicator based upon the interrupt, wherein the indicator is used during the
 16 step of determining to determine if M data bits are available.